

Additional Practice**Lessons 7.2 and 7.3**

1. There are two numbers n that satisfy the following equations. Find both numbers.

a. $n(n + 1) = 306$

b. $n(n + 1) = 462$

c. $(n - 1)(n) = 182$

2. The following function is defined by a messy rule.

$$p(x) = (x - 2)(x^2 - 2x + 5) - x(x^2 + 4x + 9)$$

- a. What is $p(0)$?
- b. What is $p(5)$?
- c. What is $p(10)$?
- d. Expand the expressions in this function to find a simpler rule for $p(x)$.
3. A square is $(x + 1)$ inches on each side. You cut a smaller square hole from the larger square that is $(y + 1)$ inches on each side. In terms of x and y , find the area of the leftover shape in square inches. Explain your method.
4. Suppose $p(x) = x^4 - 3x^2 + 1$ and $q(x) = (x^2 + x - 1)(x^2 - x - 1)$. Prove that p and q are the same function.
5. Find all of the solutions to each equation.
- a. $(x - 8)(x + 3) = 0$
- b. $(x - 11)(x + 12) = 0$
- c. $3x(x - 6) = 0$
- d. $(x - 2)(x - 3)(x - 4) = 0$
6. What are all the solutions to the equation $x^5 = x^3$?
7. Find all of the solutions to each equation.
- a. $(x + 19)(x + 27) = 0$
- b. $(x + 13)(x + 47) = 0$
- c. $(3x - 4)(x + 1) = 0$
- d. $x(12x + 5) = 0$
8. a. Rewrite $(x + 5)(x + 8)$ in the form $x^2 + (\square + \square)x + (\square \cdot \square)$.
b. Suppose $(x + p)(x + q) = x^2 + (4 + 7)x + (4 \cdot 7)$. Use the pattern in part (a) to find p and q .
9. Find an equation with only the solutions listed.
- a. 4 and -7
- b. -4 and 7
- c. -4 and -7
- d. -4 , -7 , and 0